

DDR SCHIFFBAU

Factory trawler » Atlantik[®] 488 «

VEB Volkswerft Stralsund



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Among all enterprises of VEB Kombinat Schiffbau Rostock VEB Volkswerft Stralsund has specialized on the design of fishing vessels.

2 floating docks with a capacity of 7,500 t resp. 4,500 t as well as a hydraulically working launching device are provided for vessels up to 3,000 tons.

The fishing vessels produced at our shipyard in big series have completely proved its value on all fishing grounds.

The following number of various ship types had been handed over to the shipowners:

- 594 loggers
- 172 medium trawlers
- 86 freezer trawlers type "Tropik"
- 147 freezer trawlers type "Atlantik"
- 201 Atlantik - Supertrawlers and
- 128 freezer trawler/seiners and freezer trawlers of the "Atlantik 333" type (by 31-12-86)

Thus the total number of newly built ships given over to the owners by 31 December, 1986 is 1,474.

The factory trawler "Atlantik 488" has been developed by utilization of all knowledge and experience acquired in the field of ship's construction and with regard to the hard conditions existing on board of fishing vessels. The prototype ship named "Moonzund" has already proved its value in fishing operations since 1986.



3A-0901

МОЖВИНА

The international conditions faced at present by world fishing situation had been taken into account when the a.m. factory trawler was designed. Thus a great cruising range of the ship is possible, especially for deep sea operation.

The vessel of the "Atlantik® 488" type is a partly automated heck trawler. Its operation can be effected any time of the year and is also possible in areas with tropical and tempered climates.

The vessel is suited for flotilla fishing as well as for autonomous fishing operation. The endurance period is 96 days. The following characteristics ensuring high value products should be mentioned especially:

- optimum design of the fishing gear for effective utilization of the fishing time
- high variety of fish processing possibilities
- high - capacity fish processing plants by full utilization of the catch
- catch - fresh storage of raw material, careful transport
- high - quality deep freezing and storage of the fish at a low power consumption
- high ship - safety degree and a very good sea-keeping behaviour permitting fishing and processing operations also with unfavourable sea and weather conditions
- economical energy consumption of propulsion and supply systems consumers
- extensive automation degree

The fishing gear permits use of bottom and pelagic trawls. Arrangement of the fishing equipment on deck is designed for the alternating net technique. In addition to the Rules of the USSR Register other international regulations have been taken into account to a necessary extent.

Requirements of environmental protection - IMO, prevention of sea pollution by ships - are met by the following plants:

- oily bilge water separator with an output capacity of 5 cub. m per hour
- marine sewage treatment plant, type KAREA 25 output capacity: 25 cub. m per day
- marine incinerator plant, type SAVA output capacity: 75 kg fast refuse per hour resp. 50 kg oil sludge per hour

General characteristics of the ship

Main particulars

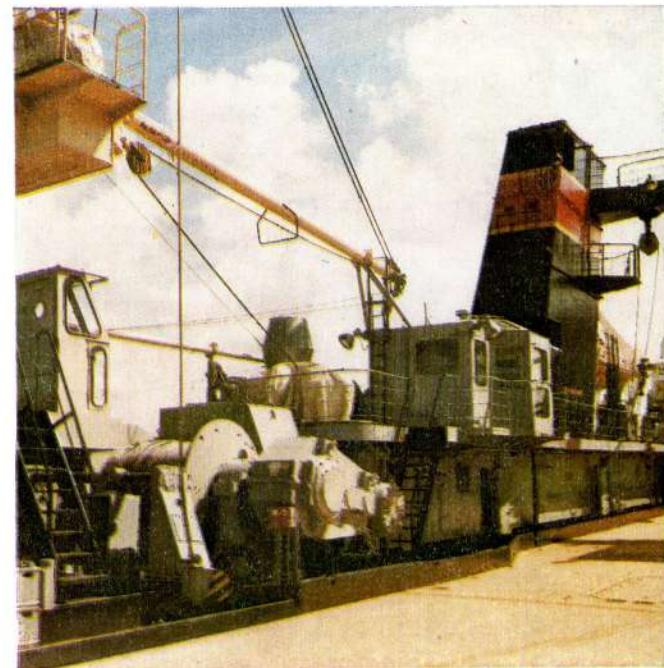
Length overall	120.70 m
Length between perpendiculars	107.00 m
Breadth	19.00 m
Depth to 1st deck	12.22 m
Designed draught	6.40 m
Gross tonnage	7,703 tons gross
Nominal output of main engines with $n = 500 \text{ min}^{-1}$	2 x 2,650 kW
Speed	15 knots
Rope pull with 5.5 knots	294 kN
Tinned fish plant	26,000 tins, size 6 per 20 hours
Combined freezing and reefer hold plant with 2 belt-type freezers type LBH 31/5	60 t/day
Fish meal plant	50 - 60 t raw mat./day
Liver oil plant	4.4 t liver/22 h
Refrigerated cargo holds (net capacity)	3,454 cub. m
Fish meal holds (net capacity)	495 cub. m
Fish oil and liver oil tanks (net capacity)	66 cub. m
Class KM	★ Л 1 [i] A 2 (catcher vessel)

Fishing gear

The ship is equipped with a fishing gear permitting fishing operations with bottom trawls and pelagic nets.

Optimum breadth of the catch deck and arrangement of the winches render possible to use the alternating net technique. A catch deck of 45 m length is provided for trawling operations.

One electric trawl warp winch type 1 TKW 480 is arranged on either side of the catch deck. The drum of each winch is rated for a warp length of 4,000 m and a diameter of 37 mm. The maximum rope pull is 260 kN with a hauling speed of 1.6 m/sec.



The following 6 fishing winches are mounted in the forward area of the catch deck:

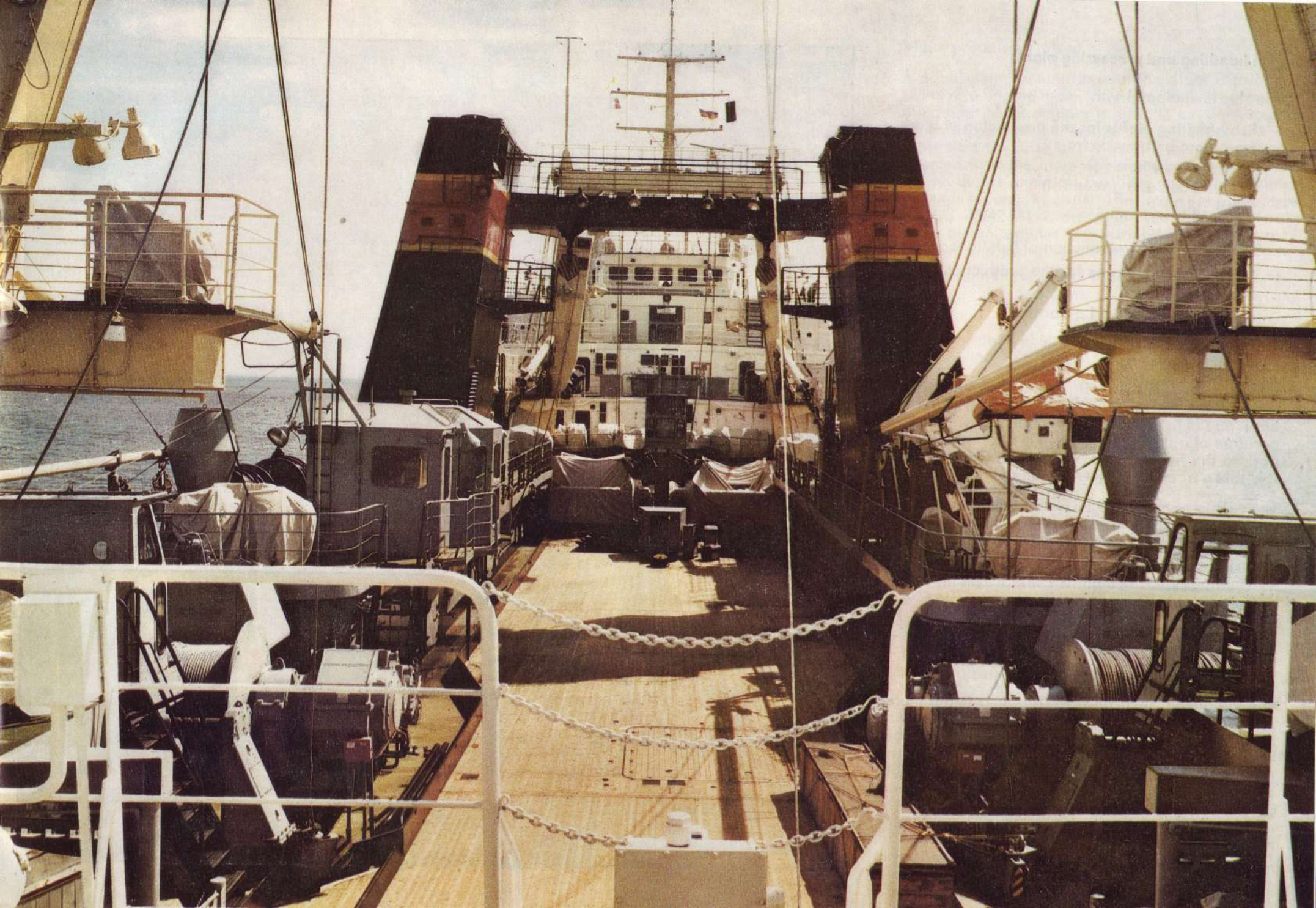
- 2 cable/net drum winches type 2 JNW 14 with a capacity of 14 cub. m
- 2 gyn winches type 1 HW 160, rope pull 160 kN
- 2 gilson winches type 5 HW 100, rope pull 105 kN

Besides that

- 2 dumping out winches type 5 HW 100, rope pull 105 kN provided for lifting the full cod end are arranged in the area of the trawl warp winches, too.

At the side of the rear stern chute there are two net stores with a capacity of 165 cub. m each.

The portside net room is equipped with one trawl-warp storage winch type 1 KSW designed for 2,000 m trawl warp. All fishing winches are controlled and monitored from the central winch control stand arranged portside on a higher level in the middle of the deck.



Fish handling and processing plants

The ship is equipped with

- fish handling plants for the production of block frozen products made from
 - untreated whole fish
 - beheaded and gutted fish
 - fish fillet
- tinning plants designed for the production of fish tinned
- fish processing plants for the production of
 - fish meal
 - fish oil for technical purposes
 - fish liver oil

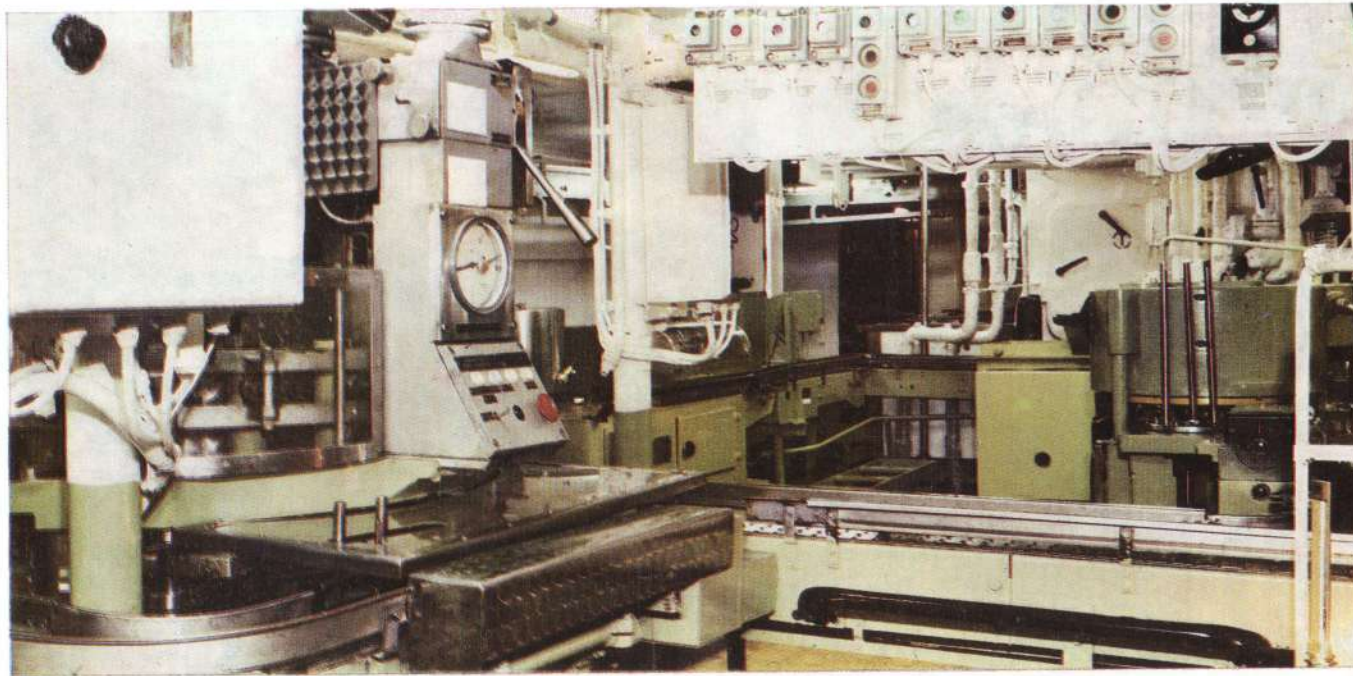
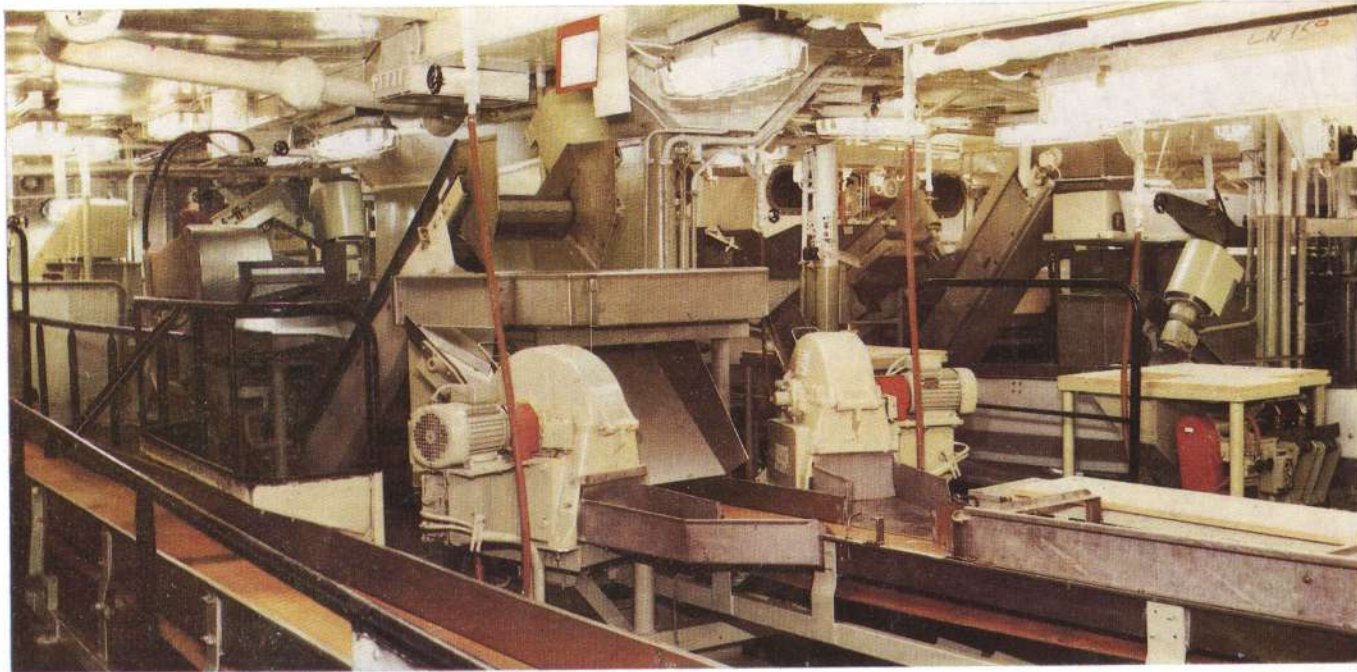
Fish treatment

The ship is equipped with 4 fish bunkers having a total capacity of appr. 79 cub. m of sea water and appr. 50 t of fish for catch precooling down to a temperature of appr. 1 °C. The fish is fed from the catch deck to the fish bunkers via flush – deck hatches. It is taken from the bunkers by one elevator each.

The fish is transported from a conveyer arranged thwartship to the treatment lines mounted longitudinally to the vessel body:

- fish slaughtering line 1 (gutting line for small fish with mechanical presorting)
- fish slaughtering line 2
- manual treatment line
- transporting line for whole fish

The produced semi-finished products (slaughtered fish, fillet, whole fish) are transported to the freezing devices via conveyers. Besides that, the fish produced on slaughtering line 1 (Gutting line for small fish) may be transported via a conveying chute to the cannery. Trash fish and offal are fed to the fish meal plant by means of a screw conveyer. Due to the extensive machinery arranged in the fish processing room a high degree of mechanization is guaranteed. So it renders possible to ease working operations in a considerable extent.



Two freezers with a capacity of 60 t/23 h are supplied for the freezing of the semi-finished products into blocks of 800 x 250 x 60 mm size.

The frozen blocks are automatically supplied to the adjoining thick-layer glazing device.

The glazed fish blocks are packed by hand. The cardboard boxes are passing a counter and are transported into cargo hold 1 resp. 3 via conveyor belts and chutes where the packed fish blocks are stored with a temperature of -28°C .

It is possible to use hold 1 for the storage of frozen fish as well as of tins, too. When using it for tins the storage temperature is appr. $+15^{\circ}\text{C}$.

Cannery

The fish prepared at the fish treatment plant can be processed in the cannery to the following products:

- tinned fish, natural
- tinned fish, natural, with oil added
- tinned fish in oil
- tinned fish with beef-tea added

Alternatively these products can be filled into round tins of sizes 3, 6 or 8 according to GOST 5981-71.

It is possible to convert the plant from one tin option to the other one. The capacity of the plant is 26,000 tins (size 6) per 20 hours.

Preferably there are produced fish tins from the following fish species:

- herring
- mackerel
- horse mackerel
- hake

All operations of the tin production are mechanized and automated. The exact weight of tin filling is ensured by an automatic weight control apparatus and tins of too much as well as too little weight are eliminated by it.

When producing tinned fish in oil the tins filled already with fish but not closed have to undergo a thermal pretreatment in the sterilization plant. The vegetable oil supplied to the tins is also pretreated

thermally before it is given into the tins. The vegetable oil is supplied at a temperature of 75°C . All pretreatment of the oil is effected by automatically working plants. The vegetable oil is stored in 4 tanks with a capacity of 80 cub. m. During the storage of this oil the tank surface can be covered by nitrogen.

The labelled and packed tins are stored in a special hold and in a multi-purpose hold.

Portable conveyers are arranged for transport operations within the hold area.

Fish processing

The fish meal and fish oil plant type VF/MO 4/1 with a throughput capacity of 50 – 60 t raw material/24 h is used for the processing of the offal and of species unfit for human consumption into fish meal and fish oil. The plant is working by the wet method with a screw extruder.

An installed pelletizing plant of the VM/P - 500 type is mounted to produce pellets from fish meal which have a diameter of 8 mm and a length of 16 mm.

A liver oil plant type VL/O 200 is provided for the processing of fish liver into the intermediate product "liver oil for medical purposes". The throughput capacity is 4.4 t liver/22 h.

The plant is operating on the principle of decomposition by heat.

Main propulsion plant

A double-engine main propulsion plant is arranged in the rear engine room. Via high-flexibility couplings the output of the engines is given to a reduction gear which drives the four-blade V.P. propeller. At the same time the drive of the shaft-driven generators is effected from the main engines by means of a PTA-output device and high-flexibility couplings mounted at the reduction gear. The main engines type 6 VDS 48/42 AL-2 are medium-speed four-stroke trunk-piston engines with exhaust-gas turbo-supercharger and charging-air with direct injection.

The manufacturer is VEB Maschinenbau Halberstadt.

Nominal output of main engines $2 \times 2,650 \text{ kW}$
with $n = 500 \text{ min}^{-1}$

Rotation speed of output shaft
to propeller 148 min^{-1}

The main engines as well as the auxiliary engines, too, can work on heavy oil basis with a viscosity up to $36 \text{ mm}^2/\text{sec}$. and a temperature of 50°C in order to increase the economy of operation.

Power generation plant

The ship's mains is a three-phase system with a voltage of 380 V and a frequency of 50 cps. The following plants are provided for power generation:

- 2 ship's mains power generating sets type 8 VD 26/20 AL-2/S 450 L 6 with an output of 950 kVA each at a rated speed of 1000 r.p.m., made by VEB Schwermaschinenbau „Karl Liebknecht“ Magdeburg
- 2 shaft-driven three-phase generators type DGSF/1421-6 with an output of 1,875 kVA each
Manufacturer: VEB Sachsenwerk Dresden

In the case of failure of the ship's mains power supply an emergency power generating plant is automatically started and raised. Its output is 140 kVA.

A one-drum auxiliary boiler ESH 6.3 made by VEB Dampfkesselbau Dresden-Übigau is arranged in the rear engine room. The rated amount of steam is 6,300 kg/h.

An additional steam amount of 2,200 kg/h is produced by 2 exhaust-heat boilers.

Control and monitoring equipment and automated plants

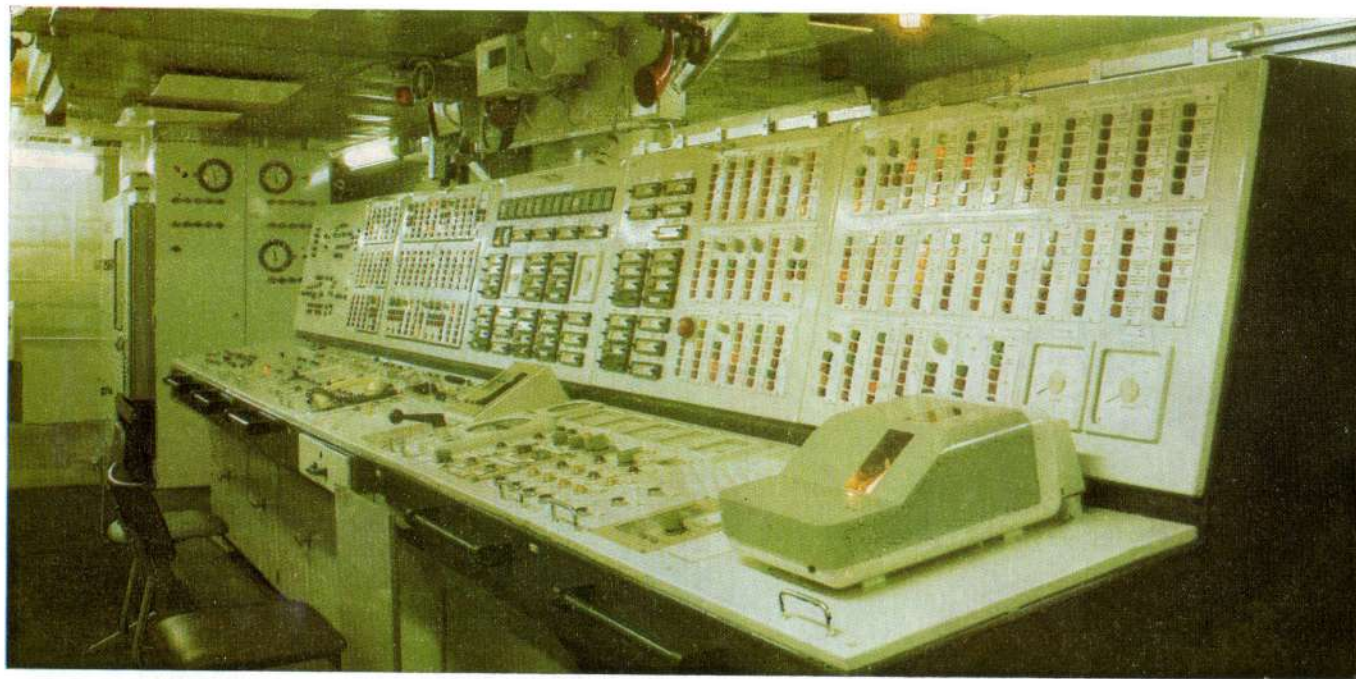
The ship has the automation class A 2. The high degree of automation of the most important plants in the engine area permits 16 hours unmanned and maintenance-free operation. All switching, controlling and monitoring operations required for power generation, power distribution, main drive and automated equipment or units of the engine area can be effected from the sound-insulated and air-conditioned central engine control room arranged on the tweendeck of the rear engine room.

The following units are arranged in the central engine control room:

- engine control desk
- main switchboard
- control cabinets for automated remote control of main engines, couplings and V.P. propeller as well as for the protective circuits of the main propulsion plant and the automated control of the engine plant
- control cabinets of the central engine monitoring system
- cabinets for the automated generation plant.

The vessel is equipped with the following automated plants and systems:

- automated remote control system – AFA – for controlling and regulating of the main engines, clutches and V.P. propeller
- protective circuit of main propulsion plant
- automated control equipment for power generation – with the following functions:
 - synchronization and parallel connection of the ship's mains power supply generators and the shaft-driven three-phase generators
 - active load balance of the ship's mains supply generators



- automated remote control of diesel engines – AFB – with the following functions:
 - remote starting, remote stopping and protective circuit for the ship's mains diesel generator sets
 - periodical pre-lubrication in regular intervals of the ship's mains diesel generator sets
 - automated starting of the stand-by ship's mains generator set in the case of mains black-out
- protective gear for the diesel generator sets – AGS – with protective functions for the corresponding generator

Other parts of machinery are automated, too. An engine monitoring system is provided for the control and monitoring of the technical parameters in the engine area.

Navigational, fish locating and radio installations

The bridge control station is serving as controlling and monitoring centre for ship's navigation. Propeller adjustments required for maneuvering and fishing operations are also made from this central station.

The most important units included are:

- hand gear and autopilot
- engine telegraph transmitter with propeller pitch reference element
- command and r.p.m. indicator receiver
- automatic fog signal
- upper deck switchboard
- navigation lantern switch

For radio navigation the vessel is equipped with:

- 1 radio direction finder
- 2 radar installations
- 2 radio navigation installations



The fitted gyro – compass installation is connected to 4 repeaters, the hand gear and autopilot and to several radio navigation installations, too.

The following fish locating installations are arranged at the vessel:

- horizontal and vertical echo sounder
- vertical echo sounder
- vertical echo sounder for fishing and navigation
- wire-bound net sounder with cable winch
- wireless net sounder with retractable device and winch for dragged receiving unit

The radio installation permits the wireless transmission of informations in the short-wave, intermediate-wave and medium-wave bands for telegraph, telephone and telex communication. One radio room, one telex room and one transmitter room are provided for the arrangement of the equipment.

Rigging

The ship is equipped with 4 cargo gears consisting of:

8 cargo winches type 31.55.2

8 topping winches type 1 HPW 63 (electrical)

8 cargo holds of 13 m length

Useful load:

Single operation with one 5 t derrick

Married operation of 3 t derricks

Life-saving appliances

One motor life-boat type KMR 85.148-00 of closed construction designed for 58 persons is arranged on each ship side in a gravity davit. They can also fulfil functions of a duty boat. Furthermore, 6 life-rafts for 20 persons each, life jackets and life rings are provided in an extend corresponding to the valid Rules and directions. Life-saving appliances meet the demands of SOLAS Convention.





Furnishings

The accommodation, common and service rooms on the ship are of modern design, offering a high degree of comfort and agreeable working and living conditions for the crew members.

The following spaces are provided:

- 2 combined day and bed-rooms with adjacent sanitary room (for captain and chief engineer)
- 10 single-berth cabins
- 49 double-berth cabins

The officers' messroom has 24 seats but that of the crew is designed for 48 persons. Furthermore, a club-room is provided for 22 members of the crew. Adjacent to each of the messrooms there is a pantry arranged. A sportsroom and a sauna are provided for fitness training and obtainment of a good physical condition of the crew.

A well furnished sick bay is provided for the medical welfare of the crew. There is arranged the necessary medical apparatus including one operating table, various devices and some complete sets of instruments for medical attendance.

Dental care is possible, too.

Besides that, 2 isolation wards with one swing bed and separate sanitary room each as well as a sick room with two beds and separate bath-room and toilet are provided for medical attendance.

A comfortable climate in summer as well as in winter operation is provided in all accommodation, service and medical spaces by means of an air-conditioning plant.

Sanitary facilities are arranged in sufficient quantity.





МОШЗВЕЗДА
И. В. ВИННИ

3А-0901



Scope of delivery and services

Cargo vessels - Special vessels - Fishing vessels - Vessels for inland waterways-Ship repairs - Technical service in GDR sea ports
Freezing and refrigerating plants-Marine equipment of all kinds - Live saving equipment
Licences - Engineering - Project studies and design - Training of specialists

SCHIFFSKOMMERZ

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